

18. (Original) A process according to claim 17, wherein the diene hydrogenation process is carried out at an absolute pressure of from 20 to 30 bar and an inlet temperature of from 40 to 200° C.

19. (Original) A process according to claim 18, wherein the LHSV of the feedstock in the diene hydrogenation process is from 2 to 5h⁻¹.

20. (Currently Amended) A process for the cracking of olefins in a hydrocarbon feedstock containing at least one diene and at least one olefin, the process comprising hydrogenating the at least one diene to form at least one olefin in the presence of a transition metal-based hydrogenation catalyst at an inlet temperature of from 40 to 200° C and an absolute pressure of from 5 to 50 bar with a hydrogen/diene molar ratio of at least 1, and catalytically cracking the olefins in the presence of an MFI crystalline silicate catalyst having a silicon/aluminum atomic ratio of from 180 to 1000 at an inlet temperature of from 500 to 600° C and an olefin partial pressure of from 0.1 to 2 bar to produce an effluent having at least one olefin and having a different olefin distribution with respect to average carbon number than the at least one olefin in the feedstock.

Claims 21 – 36 have previously been cancelled.

37. (Previously added) A process for cracking an olefin-rich hydrocarbon feedstock which is selective towards propylene in the effluent, the process comprising contacting a hydrocarbon feedstock having a maximum diene concentrated therein of 0.1 wt. % containing olefins having a first composition of at least one olefinic component with an MFI crystalline silicate catalyst having a silicon/aluminum atomic ratio of from 180 to 1000 to produce an effluent having a second composition of at least one olefinic component, the feedstock

contacting the catalyst at an inlet temperature of from 500 to 600° C and being passed over the catalyst at an LHSV of from 10 to 30h⁻¹, the feedstock and the effluent having substantially the same olefinic content by weight therein, and the effluent having a higher propylene content than the feedstock.

38. (New) A process according to claim 20 wherein the LHSV of the feedstock in the diene hydrogenation process is from 2 to 5 h⁻¹.

39. (New) A process according to claim 38 wherein the diene hydrogenation process is carried out at an absolute pressure from 20 to 30 bars and an inlet temperature from 40 to 200° C.

40. (New) A process according to claim 20 wherein said hydrogenation is carried out to provide a maximum diene concentration in said feedstock of 0.1 wt. %.

41. (New) A process according to claim 40 wherein the maximum diene concentration is 0.05 wt. %.

42. (New) A process according to claim 40 wherein the maximum diene concentration is 0.03 wt. %.

43. (New) A process according to claim 20 wherein the olefin content of the feedstock and the olefin content of the effluent are within ± 15 wt. % of each other.

44. (New) A process according to claim 43 wherein the olefin contents of the feedstock and the effluent are within ± 10 wt. % of each other.